

# Note on the taxonomic status of *Xenopus ruwenzoriensis* (Pipidae, Amphibia)

by

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Avec 1 figure

## ABSTRACT

The taxonomical history of *Xenopus ruwenzoriensis* is analysed; it is concluded that the species should be referred to as *X. ruwenzoriensis* Tymowska et Fischberg, 1973. A lectotype is chosen and the existing paralectotypes are listed.

## AN OUTLINE OF THE PROBLEM

The pipid frog species *Xenopus ruwenzoriensis* appears to have been described twice.

The name *X. ruwenzoriensis* was mentioned for the first time in 1973 by TYMOWSKA & FISCHBERG, in an article concerning the chromosome complements in the genus *Xenopus*. The species was referred to as *Xenopus ruwenzoriensis* sp. n., and in a footnote it was explicitly stated that "*X. ruwenzoriensis* is a new species and not identical with the newly described species: a) *X. kigesiensis* sp. n. (TINSLEY 1973) and b) *X. vestitus* sp. n. (LAURENT 1972)". (These two names later turned out to apply to the same species, see TINSLEY 1975). Furthermore, a short diagnostic description was given of the karyotype ( $2n = 108$ ), and three photographs of a mitotic metaphase and male meiotic metaphases

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I and II were added. A designation of a holotype was not given, but the geographic origin of the new species (Semliki, Uganda) was mentioned.

The second description of *X. ruwenzoriensis* was given five years later by FISCHBERG & KOBEL (1978). In their article, these authors described two new polyploid *Xenopus* species from western Uganda: *Xenopus ruwenzoriensis* sp. n. and *Xenopus* sp. nova (the latter was subsequently described as *X. wittei* by TINSLEY *et al.* 1979). FISCHBERG & KOBEL (1978) presented a description of the exterior morphology, body measurements and three photographs of three different specimens. Although the article was meant to provide the definitive description of *X. ruwenzoriensis*, there were no type-specimens mentioned.

It is now curious to note that in practically all papers, in which *X. ruwenzoriensis* is mentioned, the authors of the species are considered to be FISCHBERG & KOBEL 1978 instead of TYMOWSKA & FISCHBERG 1973. The reason of this (FISCHBERG, pers. comm.) is that it was intended to have FISCHBERG and KOBEL (who first discovered the species) give the first description; the 1973 paper was published while ignoring the priority of the first date of publication. This phenomenon is even apparent before the actual publication of the 1978 paper. VIGNY, in a thesis from 1976, published in 1977 (*a*), mentions "FISCHBERG et KOBEL 1976"; "F. et K. à paraître" and "F. et K., sous presse", in all cases referring to the paper that came out in 1978. VIGNY (1977*b*, 1977*c*) also mentioned *X. ruwenzoriensis*, but without naming authors.

The habit of referring to *X. ruwenzoriensis* FISCHBERG et KOBEL, 1978 became apparent after the publication of the 1978 paper; examples are to be found in e.g. TYMOWSKA & FISCHBERG 1980; MANN *et al.* 1982; BÜRKI *et al.* 1984; BÜRKI & FISCHBERG 1985; and REUMER 1985. Only FROST (1985) cited *X. ruwenzoriensis* TYMOWSKA & FISCHBERG, 1973. It is clear that this situation is highly unsatisfactory from a taxonomical point of view. We therefore intend to clarify the situation and to provide *X. ruwenzoriensis* with a sufficient taxonomical basis.

#### CONCLUSIONS

The paper of TYMOWSKA & FISCHBERG (1973) has to be regarded as the original description of the species *Xenopus ruwenzoriensis*. In spite of a certain incompleteness, it conforms entirely to the Articles 8, 11 and 13 of the International Code of Zoological Nomenclature (3rd edition, 1985). The journal (*Chromosoma*) is a satisfactory means of publication; the name is properly presented and the description of the unique karyotype is, though a poor one, a sufficient character to differentiate the taxon (next to which it might be considered "part of an animal" in the sense of Art. 23 f).

The species is thus called *Xenopus ruwenzoriensis* TYMOWSKA et FISCHBERG, 1973. The description and measurements given by FISCHBERG & KOBEL (1978) are an important addition to the original description.

The second problem concerns the absence of type specimen(s).

Articles 73a (iv) and 74b (i) of the Code leave open the possibility to choose an illustrated specimen as type specimen, even if the specimen itself cannot be traced. TYMOWSKA & FISCHBERG (1973) only gave illustrations of chromosome spreads, that cannot be seriously considered as illustrations of "specimens". The three specimens illustrated by FISCHBERG & KOBEL (1978) are not from the original publication (requirement of Art. 73a) neither are they "original specimens" (Art. 74b).

For the assignment of a type specimen we will have to rely on Recommendation 72B, in which the use of evidence other than published evidence is suggested to be taken into



FIGURE 1.

*Xenopus ruwenzoriensis* Tymowska et Fischberg, 1973, lectotype, female, MHNG 2238.15, in a: dorsal view, and b: ventral view. Slightly enlarged (c. 1.2 $\times$ ).

account. The description of *X. ruwenzoriensis* by TYMOWSKA & FISCHBERG (1973) is based on specimens caught (and recognized as a new species) by M. FISCHBERG and H. R. KOBEL during a 1972 expedition to Uganda. The species is known from one locality only, the Semliki Valley near Bundibugyo, W. Uganda; this being the type locality. We may thus consider all wild-caught specimens of *X. ruwenzoriensis* from this 1972 expedition as the type series, consisting of syntypes. A lectotype can be chosen from this series of syntypes.

We have been able to retrace 6 specimens of the type series. They were found in the collection of the Muséum d'Histoire naturelle, Geneva (MHNG). They were stored together with one of the two female specimens mentioned by FISCHBERG & KOBEL (1978) that had  $2n = 36$  chromosomes and a reddish dorsal color and that were identified to be most likely *X. fraseri* Boulenger (MHNG 2238.17). In addition, three other specimens were found in the storage of the Station de Zoologie expérimentale, Geneva. These latter three specimens, however, may also have been collected during a second expedition to the Semliki Valley in 1975. Although it concerns the type locality, we think they should not be included in the type-series, but merely considered topotypes. Two of the specimens from the MHNG had been put together in a plastic envelope and labelled "type". We think it fit to choose one of them as lectotype; all other (5) specimens from the type series are automatically paralectotypes.

The taxonomy can be summarized as follows:

Class AMPHIBIA

Order ANURA

Family PIPIDAE

Genus *Xenopus* Wagler, 1827

*Xenopus ruwenzoriensis* Tymowska et Fischberg, 1973

(*Xenopus ruwenzoriensis* Fischberg et Kobel,  
1978: primary homonym and objective synonym)

Lectotype:	MHNG 2238.15 (female) (figure 1a, b).
Paralectotypes:	MHNG 2238.16, 2238.18, 2238.21 (females); 2238.19, 2238.20 (males).
Topotypes:	Three specimens (s. n.) kept in the Station de Zoologie expérimentale, Geneva.
Original diagnosis:	2n = 108, 54 bivalents at meiosis (TYMOWSKA & FISCHBERG 1973).
Amended diagnosis:	Medium-sized representative of the genus <i>Xenopus</i> , closely resembling <i>X. fraseri</i> in its morphology; prehallux provided with a (fourth) claw; cranial morphology of the <i>X. fraseri</i> group sensu REUMER, 1985; somatic chromo- some number 2n = 108.
Description in addition to diagnosis:	See FISCHBERG & KOBEL 1978.
Type locality:	Semliki Valley near Bundibugyo, W. Uganda.

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#### REFERENCES

- BÜRKI, E., M. FISCHBERG. 1985. Evolution of globin expression in the genus *Xenopus* (Anura Pipidae). *Mol. Biol. Evol.* 2 (3): 270-277.
- BÜRKI, E., J. SCHWAGER, M. FISCHBERG. 1984. Electrophoretic patterns of hemoglobin in different *Xenopus* species, subspecies and interspecies hybrids. *Experientia* 40: 59-64.
- FISCHBERG, M., H. R. KOBEL. 1978. Two new polyploid *Xenopus* species from western Uganda. *Experientia* 34: 1012-1014.

- FROST, D. (ed.) 1985. Amphibian species of the world. *Ass. Syst. Coll.*, Lawrence, Kansas: 1-750.
- International Code of Zoological Nomenclature. *Int. Trust zool. Nomenclature*, 3rd ed., 1985.
- MANN, M., M. S. RISLEY, R. A. ECKHARDT, H. E. KASINSKY. 1982. Characterization of spermatid/sperm basic chromosomal proteins in the genus *Xenopus* (Anura, Pipidae). *J. exp. Zool.* 222: 173-186.
- REUMER, J. W. F. 1985. Some aspects of the cranial osteology and phylogeny of *Xenopus* (Anura, Pipidae). *Revue suisse Zool.* 92 (4): 969-980.
- TINSLEY, R. C. 1975. The morphology and distribution of *Xenopus vestitus* (Anura: Pipidae) in Central Africa. *J. Zool., Lond.* 175: 473-492.
- TINSLEY, R. C., H. R. KOBEL, M. FISCHBERG. 1979. The biology and systematics of a new species of *Xenopus* (Anura: Pipidae) from the highlands of Central Africa. *J. Zool., Lond.* 188: 69-102.
- TYMOWSKA, J., M. FISCHBERG. 1973. Chromosome complements of the genus *Xenopus*. *Chromosoma* (Berl.) 44: 335-342.
- TYMOWSKA, J., M. FISCHBERG. 1980. The karyotype of *Xenopus wittei* Tinsley, Kobel and Fischberg, another tetraploid anuran species (Pipidae). *Cytogenet. Cell Genet.* 28: 208-212.
- VIGNY, C. 1977a. Etude comparée de 12 espèces et sous-espèces du genre *Xenopus*. *Thèse No. 1770*, Univ. Genève.
- 1977b. Hérité du 4<sup>e</sup> ongle et du tubercule métatarsien dans le genre *Xenopus*. *Revue suisse Zool.* 84 (1): 181-185.
- 1977c. Nouveau critère de détermination dans le genre *Xenopus*, répartition des bourrelets sensoriels chez 14 espèces et sous-espèces. *Revue suisse Zool.* 84 (2): 309-317.